

Listing of Claims.

Please amend the claims as shown below by deleting the material indicated by strike-through and adding the underlined material. This listing of claims will replace all prior versions and listings of claims in this application.

Claims 1-14 (Withdrawn)

14. (Currently amended) A method for detecting incomplete deprotection of a synthetic oligonucleotide by immunoassay, said immunoassay comprising the steps of:

contacting a synthetic oligonucleotide to an antibody, wherein said antibody specifically binds to a synthetic oligonucleotide having an organic protecting group covalently bound thereto, which antibody does not bind to said synthetic oligonucleotide when said organic protecting group is not covalently bound thereto according to claim 1; and then

detecting the presence or absence of binding of said antibody to said synthetic oligonucleotide, the presence of binding indicating incomplete deprotection of said synthetic oligonucleotide.

15. (Currently amended) The A method according to claim 14, wherein said immunoassay is a heterogeneous immunoassay.

B
16. (Currently amended) The A method according to claim 14, wherein said immunoassay is a homogeneous immunoassay.

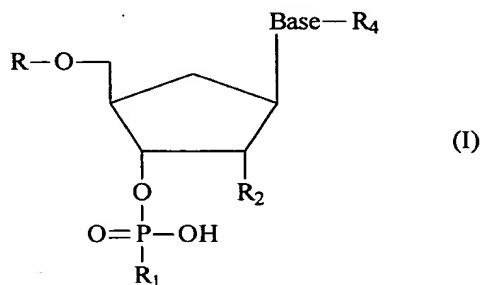
17. (Currently amended) The A method according to claim 14, wherein said immunoassay is a sandwich assay.

18. (Currently amended) The A method according to claim 14, wherein said oligonucleotide is immobilized on a solid support.

Claims 19-22 (Withdrawn)

Claims 23-55 (Previously cancelled)

Claim 56 (New) The method according to claim 14, wherein said antibody binds to a synthetic oligonucleotide consisting of from 3 to 20 nucleotides, and wherein one of said nucleotides is a protected nucleotide according to Formula (I):



wherein:

R is H or a protecting group;

subject to the proviso that R is a covalent bond to an adjacent nucleotide when said protected base is not a 5' terminal nucleotide in said oligonucleotide;

R₁ is H or a protecting group;

subject to the proviso that R₁ is a covalent bond to an adjacent nucleotide when said protected base is not a 3' terminal nucleotide in said oligonucleotide;

R₂ is H or -OR₃;

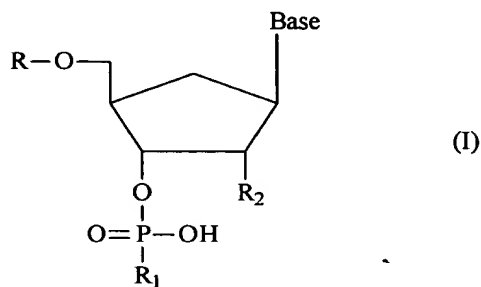
R₃ is H or a protecting group; —

Base is a purine or pyrimidine base;

R₄ is a protecting group bonded to an amino group of said base;

and further subject to the proviso that when one of R, R₁, R₃ and R₄ is a protecting group, then the others of R, R₁, R₃ and R₄ are not protecting groups.

57. (New) The method according to claim 14, wherein said antibody binds to a synthetic oligonucleotide consisting of from 3 to 20 nucleotides and having a 5' nucleotide, and wherein said 5' nucleotide is a protected nucleotide according to Formula (I):



wherein:

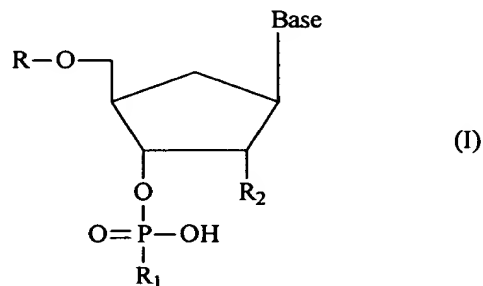
R is a protecting group;

R₁ is a covalent bond to an adjacent nucleotide;

R₂ is -H or -OH; and

Base is a purine or pyrimidine base.

b' 58. (New) The method according to claim 14, wherein said antibody binds to a synthetic oligonucleotide consisting of from 3 to 20 nucleotides and having a 3' nucleotide, and wherein said 3' nucleotide is a protected nucleotide according to Formula (I):



wherein:

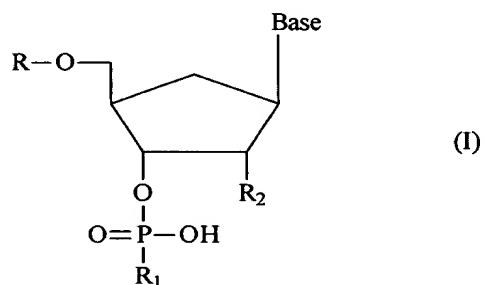
R is a covalent bond to an adjacent nucleotide;

R₁ is a protecting group;

R₂ is H or -OH; and

Base is a purine or pyrimidine base.

59. (New) The method according to claim 14, wherein said antibody binds to a synthetic oligonucleotide consisting of from 3 to 20 nucleotides, and wherein one of said nucleotides is a protected nucleotide according to Formula (I):



wherein:

R is a covalent bond to an adjacent nucleotide;

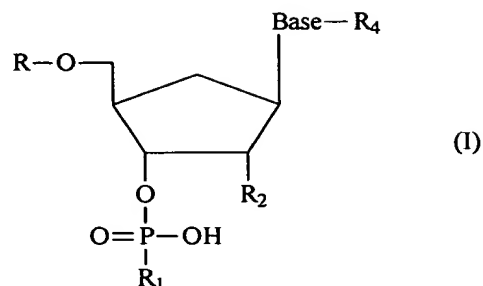
R₁ is a covalent bond to an adjacent nucleotide;

R₂ is -OR₃;

R₃ a protecting group; and

Base is a purine or pyrimidine base.

60. (New) The method according to claim 14, wherein said antibody binds to a synthetic oligonucleotide consisting of from 3 to 20 nucleotides, and wherein one of said nucleotides is a protected nucleotide according to Formula (I):



wherein:

R is a covalent bond to an adjacent nucleotide;

R₁ is a covalent bond to an adjacent nucleotide;

R₂ is H or -OH;

Base is a purine or pyrimidine base; and

R₄ is a protecting group bonded to an amino group of said base.

61. (New) The method according to claim 14, wherein said antibody binds to a synthetic oligonucleotide consisting of from 3 to 20 nucleotides, and wherein one of said nucleotides is a protected with photolabile protecting group.

62. (New) The method according to claim 14, wherein said antibody is a polyclonal antibody.

63. (New) The method according to claim 14, wherein said antibody is a monoclonal antibody.

B.1
cont